



A.D. 1816 N^o 4073.

S P E C I F I C A T I O N

OF

JOSEPH GREGSON.

CONSTRUCTION OF CHIMNEYS, &c.

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GREGSON'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I JOSEPH GREGSON, of Charles Street, Grosvenor Square, in the County of Middlesex, Surveyor, send greeting.

WHEREAS His most Excellent Majesty King George the Third did, by His
5 Letters Patent under the Great Seal of the United Kingdom of Great Britain
and Ireland, bearing date at Westminster, the First day of November, in the
fifty-seventh year of His reign, give and grant unto me, the said Joseph
Gregson, my exors, admors, and assigns, His special licence, full power, sole
privilege and authority, that I, the said Joseph Gregson, my exors, admors,
10 and assigns, should and lawfully might, during the term of years therein men-
tioned, make, use, exercise, and vend, within England, Wales, and the Town of
Berwick upon Tweed, my Invention of "A NEW METHOD OF CONSTRUCTING CHIMNEYS,
AND OF SUPPLYING FIRES WITH FUEL;" in which said Letters Patent there is con-
tained a proviso that if I, the said Joseph Gregson, shall not particularly describe
15 and ascertain the nature of my said Invention, and in what manner the same is to
be performed, by an instrument in writing under my hand and seal, and cause
the same to be inrolled in His Majesty's High Court of Chancery within
two calendar months next and immediately after the date of the said Letters
Patent, that then the said Letters Patent, and all liberties and advantages
20 whatsoever thereby granted, shall utterly cease, determine, and become void, as
in and by the same, relation being thereunto had, may more fully and at large
appear.

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NOW KNOW YE, that in compliance with the said proviso, I, the said Joseph Gregson, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, is described and ascertained in the following explanation thereof with reference to the Drawings hereunto annexed :—

5

By the common and ordinary mode of constructing chimneys the smoke ascends immediately from the fire into the chimney. Now instead of that direct communication, I do, with bricks and mortar, iron, or other materials used for chimneys, before the grate is introduced into the fire-place), begin the basement of the chimney from the hearth, from whence I continue it in a perpendicular 10 direction, if practicable, to the top of the building, as at A, Figure 1, in the plan hereunto annexed, but in that side of the chimney next to which the grate will stand I leave a space or cavity proportioned to the size of the fire, or equal to the width of the grate, and about four inches deep, marked B in the said plan, and of the same distance from the chimney's basement as the bottom of the 15 grate may happen to be from the hearth, which space or cavity is the only one I make for receiving such unconsumed smoke as may issue from the fire. Having so constructed the chimney, in which no particular dimension or size is requisite, I then place [the grate in the fire-place, which I do not fix quite close to the chimney, but place it so as to] leave a space marked C in the plan between its 20 back (which I shall call the back plate, marked D in the plan) and the front of the chimney before described. The grate which I so set in the fire-place may be made of the same materials of which grates are usually made, and according to any form or pattern which fancy prescribes, so that in the part which I call the back plate there be left at the bottom of it an aperture of the width of the bottom 25 of the grate and of about two inches in depth, and so that such grate be made with such projection at the sides, top, and bottom, before and behind the said back plate, as will when enclosed form a flue or chimney to convey the smoke from the top of the fire round the boiler, and descend behind the back plate, where it mixes with the heated air coming from the bottom aperture of the back plate, and is then 30 discharged into the chimney, but in grates not having a boiler over them that circuitous rout will be avoided by the smoke immediately ascending, and then descending over the back plate, and so into the chimney. And in further explanation of my said Invention, the novelty of which embraces not only the construction of the said chimney, so as to make the smoke descend and pass 35 through the heated air, and so consume itself as before particularized, but also the mode herein-after described of introducing atmospheric air to assist the draft of the fire, I do hereby declare that I erect with any materials that are fit an air shaft, marked Z in the plan, Figure 1, in a direction perpendicular, if

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possible, from the basement of the hearth to the house top, and on either side of but to run parallel with the chimney, unless it happens there should be an external wall near to and at the back part of the hearth or fire-place, in which case I terminate it in the nearest convenient part thereof, as at Y in the plan
5 and in order to effect a communication between such air shaft and the fire, as well as to observe uniformity, I make apertures in the hearth stone, marked X in the plan, at the foot of each of the jambs or piers of the fire-place, and carry the air shaft underneath the floor or hearth stone, as at I in the plan, till it is connected with both the said apertures, and I make the dimensions of the
10 said apertures in all cases to correspond with the dimensions of the aperture B in the chimney and the said air shaft to encrease gradually in dimension from the said aperture X until it goes to the top; and to increase or diminish at pleasure, as well as equally distribute the air which will be so admitted by such air shaft, valves or dampers capp'd with fret-work may be
15 placed over such apertures, which by means of turning a screw or handle will have such regulating effect accordingly. And I further declare that my mode of supplying fires with fuel (which applies principally to furnaces and other large fires) is as follows: presuming that the bars of a furnace in which a fire is to be made to extend three feet wide, I place it at its front or mouth, twelve
20 inches higher than the grating a bed plate marked E, Figure 1, in the Drawing hereunto annexed, of the following dimensions, namely, three feet in the clear between the brickwork from side to side, and eighteen inches from front to back, and three quarters of an inch thick at least, and I make the said bed plate to rest its sides in and upon brickwork, as at H in the plan, Figure 1, to
25 be raised and carried a sufficient length and heighth further than the fire's mouth, so as to be capable of supporting the same, and to fill up the under space of twelve inches left between the said bed plate and the grating. I make a door of iron, marked F in the plan, Figure 1, to open and shut in the usual way, the only purpose of which door, however, is to facilitate the making
30 and raking of the fire. On such bed plate I make a rail, which I call a sliding rail, with a shelf, both which rail and shelf, marked K in the plan, Figure 1, are rivited together, and are three feet from end to end; the rail is five inches high, standing nearly in a perpendicular direction, and the shelf is seven inches wide, but laid in an horizontal direction, or parallel with the
35 bed plate, and I attach such rail by screws, bolts, and rivets to the nearest centre of a double elliptic spring, as at L, Figure 2, in the plan, the other centre M in the plan being fastened to a block, which is made stationary by the frame work constructed as herein-after mentioned. At about the distance of nine inches higher than the shelf I place a box, marked in the plan P, Figure 1,

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open at the top side, the dimensions of which are three feet wide, four feet long, and twelve inches deep, the sides and bottom of which box nearest the fire to project twelve inches further than the divisional end marked N in the plan, Figure 3, and such projection to be of the circular form as shewn in the plan, Figure 3, at the bottom of which last-mentioned end are left holes about 5 five inches square, and three inches from each other, with projecting inner starlings, to prevent the holes being choaked, as at the letter O, in the plan, Figure 4. I then cause the said coal box to be suspended by its extreme end nearest the fire on a pivot or axle, whose ends rest upon and are received into iron thimbles fixed in the wall for the purpose, the contrary or back end of the 10 said coal box resting upon the notches of the spiral wheel herein-after described, and marked in the plan Q, Figure 1; and as to the vacancy occasioned by the placing of the said coal box nine inches higher than the sliding shelf, I fill up the same by a piece of cast iron, marked R, which I firmly fix at each end in the brickwork, at the bottom of which is placed a brush to brush the small 15 coals from the sliding shelf, and which brickwork or other materials encompassing the fire, it must be remembered, must be arched over from the point or place marked S to the point or place marked T, both in the same Figure 1, and also enclosed at the sides thereof, so as to leave no other space either in the top, bottom, or sides than what will be sufficient for the motion of such 20 coal box and sliding shelf, and for the falling of the coals. The notches spiral wheel marked Q moves on an axis resting on any substantial frame-work made of wood or iron sufficient to support it, and from the top of which frame-work, as at U, Figure 1, in the plan, I suspend by an iron pivot and thimble a double lever with a cross bearing piece marked V, which also rests upon and is 25 moved by such notches of the said spiral wheel marked Q, both the bottom ends of which lever are attached to the sliding shelf by an iron rod, chain, or rope marked W in the plan, and at such places in the said sliding shelf as will not bear more on one side than another, and the notches of which spiral wheel are of such form and dimensions as are particularly delineated in and expressed 30 by the said plan concerning the same. The effect of which machinery (no part of which is novel except the sliding shelf, bed plate, and coal box,) is that when the wheel marked Q, Figure 1, is set in motion by hand or machinery its notches will, at the same moment any one of them elevates the hind part of the box P in the plan, (by which elevation coals deposited therein will natu- 35 rally fall and lodge on the shelf of the sliding rail marked K), force back the said lever, to which the sliding shelf is attached by the iron rod, chain, or rope before mentioned, and consequently draw back the said sliding shelf and rail, which when released by the said notch will be propelled by the said elliptic spring

FIG. 1ST
Section & Elevation.

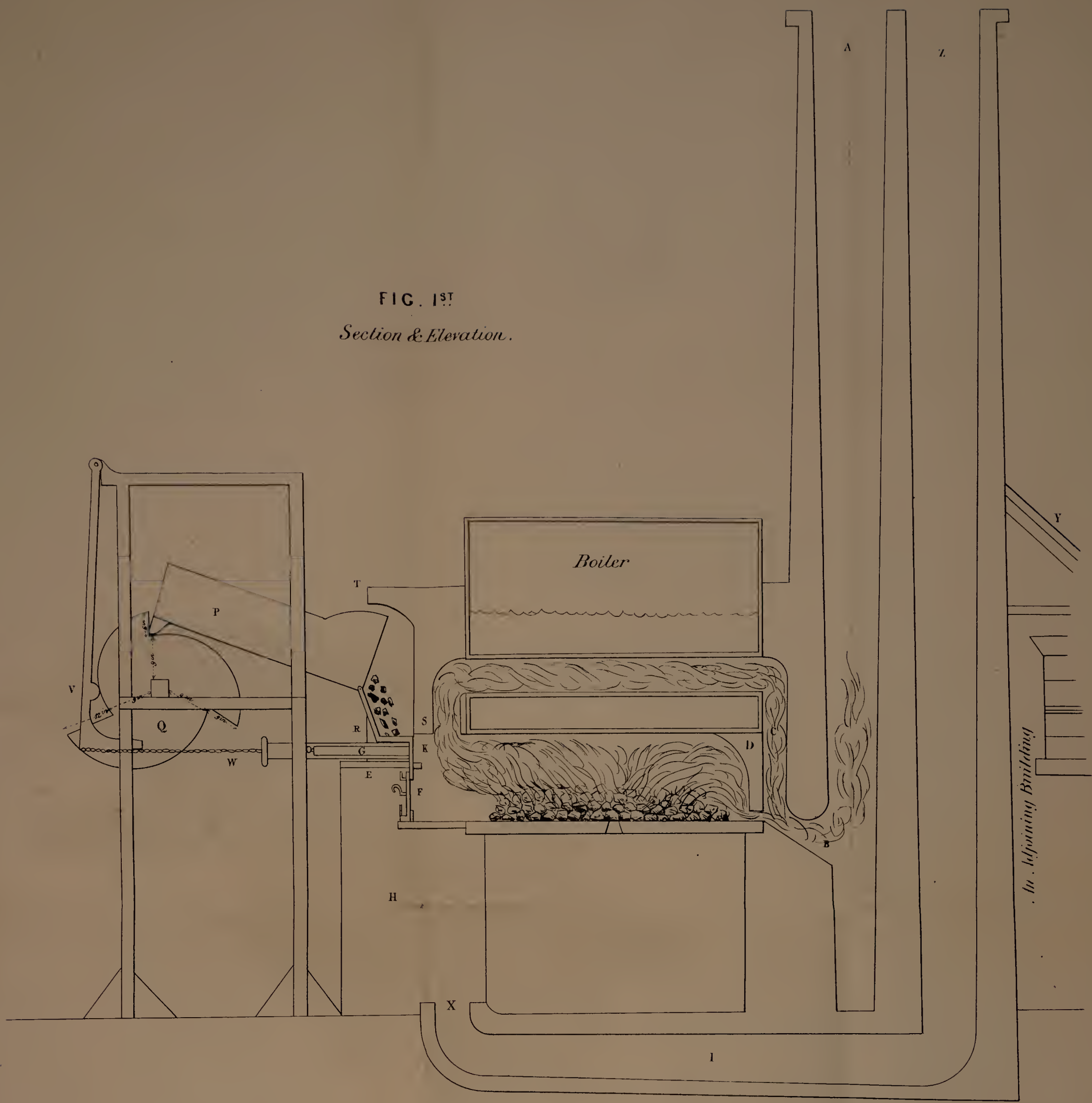


FIG. 2ND
Plan of the Spring.

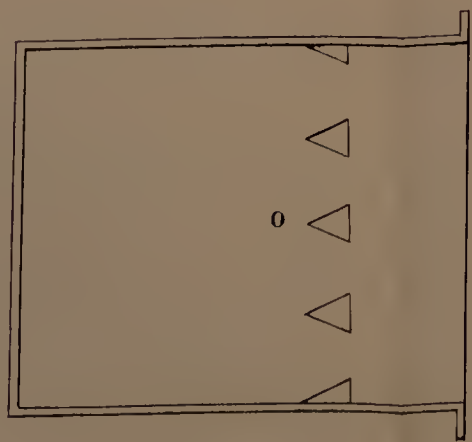
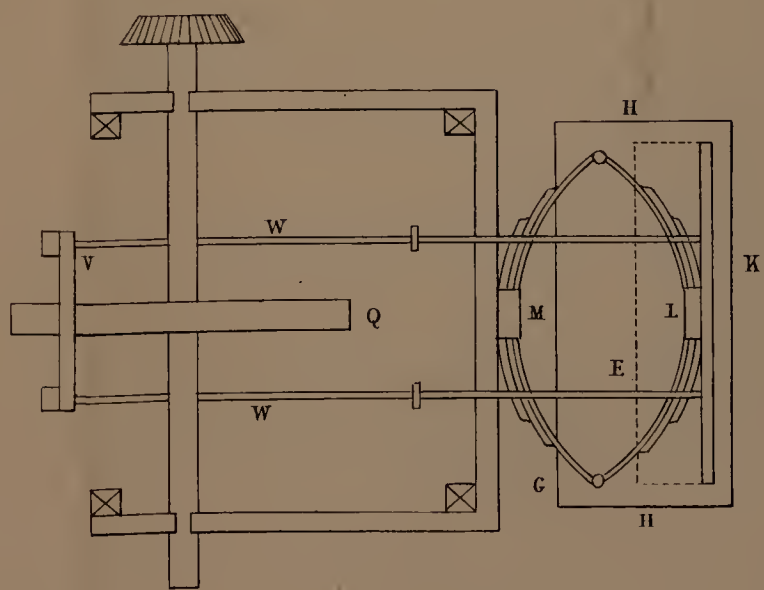


FIG. 4TH
Plan of Coal Box.

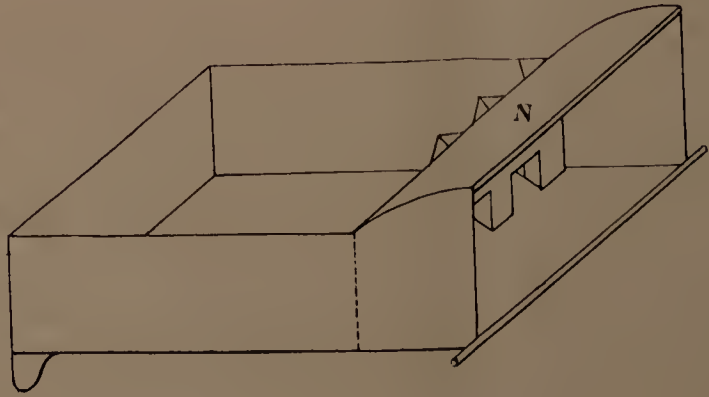


FIG. 3RD
Perspective of Coal Box.

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marked G in such manner as that its force will cast from the said bed plate marked E into and equally upon the fire all the coals which are there laying within the operative effect of such propelsion. And I declare that the said coal box, sliding rail, and shelf, springs, and other matters lastly explained by
5 this my Specification may be made of iron, steel, wood, or other materials fitting to the purposes for which the same are to be used, and that the said construction of chimneys, and also the mode of supplying fires with fuel are applicable to and may be adopted as well in dwelling-houses as in manufac-
10 tories and places where the use of furnaces and other large fires is required and although I have herein expressed the particular dimensions of constructing my said Invention, yet I do not confine myself thereto, as such dimensions will in the application of my Invention be occasionally varied by local and other circumstances.

In witness whereof, I have hereunto set my hand and seal, this thirty-first
15 day of December, in the year of our Lord One thousand eight hundred and sixteen.

JOSEPH (L.S.) GREGSON.

AND BE IT REMEMBERED, that on the Thirty-first day of December, in the year of our Lord 1816, the aforesaid Joseph Gregson came before our
20 said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

Inrolled the Thirty-first day of December, in the year of our Lord One
25 thousand eight hundred and sixteen.

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